

Claims

1. A fuel injector (1, 11) for the direct injection of fuel into the combustion chamber (6, 16) of an internal combustion engine, comprising:

at least two orifices (3a, 3b, 13a, 13b) for supplying fuel wherein the orifices
5 (3a, 3b, 13a, 13b) are aligned in such a way that fuel jets (4a, 4b, 14a, 14b) emerging from said orifices collide with one another.

2. The fuel injector of claim 1 wherein said fuel injector (1, 11) has two orifices (3a, 3b, 13a, 13b).

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3. The fuel injector (1, 11) of claim 1, further comprising: a valve element adapted to move linearly in the direction of its longitudinal axis (A) wherein said orifices (3a, 3b) are aligned substantially perpendicularly to said longitudinal axis.

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4. The fuel injector (1, 11) of claim 1, further comprising: a valve element adapted to move in the direction of its longitudinal axis (A) wherein said orifices (3a, 3b, 13a, 13b) are aligned substantially in the direction of said longitudinal axis.

5. The fuel injector of claim 1 wherein said orifices (3a, 3b, 13a, 13b) are
20 elongated.

6. The fuel injector of claim 5 wherein longitudinal axes of the cross sections of the orifices (3a, 3b, 13a, 13b) lie substantially parallel to one another.

7. The injector of claim 2 wherein said orifices (3a, 3b, 13a, 13b) are symmetrical with respect to a plane of symmetry (S).

8. An internal combustion engine with direct fuel injection, comprising:
a combustion chamber (6, 16), in which an ignition device (5, 15) and at
30 least one fuel injector (1, 11) are arranged wherein said fuel injection has at least two orifices (3a, 3b, 13a, 13b) for delivering fuel, said orifices (3a, 3b, 13a, 13b) being arranged in such a way that fuel jets (4a, 4b, 14a, 14b) emanating from said

orifices toward said ignition device (5, 15) collide with one another before reaching said ignition device.

9. The internal combustion engine of claim 8 wherein the axes of extension
5 of the orifices (3a, 3b, 13a, 13b) do not intersect said ignition device (5, 15).

10. The internal combustion engine of claim 8 wherein said fuel injector (1, 11) has two orifices (3a, 3b, 13a, 13b).

10 11. The internal combustion engine of claim 8 wherein said orifices (3a, 3b, 13a, 13b) are elongated.

12. The internal combustion engine of claim 11 wherein longitudinal axes of the cross sections of the orifices (3a, 3b, 13a, 13b) lie substantially parallel to one
15 another.

13. The internal combustion engine of claim 8 wherein said orifices (3a, 3b, 13a, 13b) are symmetrical with respect to a plane of symmetry (S).

20 14. The internal combustion engine of claim 8 wherein said fuel injector (1, 11) has a valve element adapted to move linearly in the direction of its longitudinal axis (A), and said orifices (3a, 3b, 13a, 13b) are aligned substantially perpendicularly to said longitudinal axis.

25 15. The internal combustion engine of claim 8 wherein said fuel injector (1, 11) has a valve element adapted to move in the direction of its longitudinal axis (A), and said orifices (3a, 3b, 13a, 13b) are aligned substantially in the direction of said longitudinal axis.